

What is claimed is:

1. A fixing device for use in an image forming apparatus which is capable of forming both-side images on a sheet which passes through the fixing device twice by using a sheet reversing and conveying device, the fixing device comprising:

(a) a heat applying rotary body having an elastic layer made of rubber including at least one layer and further a toner releasing layer on top thereof for coming into contact with and heating a side bearing an unfixed toner image of a transfer sheet;

(b) a pressure applying rotary body having a second elastic layer made of rubber including at least one layer and further a second toner releasing layer on top thereof for fixing and conveying the transfer material by coming into pressure contact and rotating with the heat applying rotary body;

(c) a drive source for driving at least one of said rotary bodies; and

(d) a heat applying source for heating at least one of said rotary bodies,

wherein micro-hardness of the pressure applying rotary body is smaller than that of the heat applying rotary body.

2. The fixing device of claim 1, wherein the micro-hardness of the pressure applying rotary body before providing the second releasing layer is equal to or larger than that of the heat applying rotary body before providing the releasing layer.

3. The fixing device of claim 1, wherein each value of the micro-hardness of the pressure applying rotary body and the heat applying rotary body represents each value when the elastic layer of the heat applying rotary body and the second elastic layer of the pressure applying rotary body are formed of a same material in a same thickness.

4. The fixing device of claim 1, wherein the releasing layer of the heat applying rotary body and the second releasing layer of the pressure applying rotary body are formed of a same material, and a thickness of the second releasing layer of the pressure applying rotary body is smaller than that of the releasing layer of the heat applying rotary body.

5. The fixing device of claim 1, wherein hardness of the second releasing layer of the pressure applying rotary body is smaller than that of the releasing layer of the heat applying rotary body.

6. The fixing device of claim 1, wherein the heat applying rotary body further comprises a mixture layer composed of a rubber and a resin, which is provided between the elastic layer and the releasing layer, and the pressure applying rotary body further comprises a second mixture layer composed of a rubber including at least one layer and resin, which is provided between the second elastic layer and second releasing layer, and

wherein when the releasing layer of the heat applying rotary body and the second releasing layer of the pressure applying rotary body are formed of a same material in a same thickness, a thickness of the second mixture layer of the pressure applying rotary body is smaller than that of the mixture layer of the heat applying rotary body.

7. The fixing device of claim 1, wherein the heat applying rotary body further comprises a mixture layer

composed of a rubber and a resin, which is provided between the elastic layer and the releasing layer, and the pressure applying rotary body further comprises a second mixture layer composed of a rubber including at least one layer and resin, which is provided between the second elastic layer and second releasing layer, and

wherein when the releasing layer of the heat applying rotary body and the second releasing layer of the pressure applying rotary body are formed of a same material in a same thickness, hardness of the second mixture layer of the pressure applying rotary body is smaller than that of the mixture layer of the heat applying rotary body.

8. The fixing device of claim 1, wherein the heat applying rotary body represents a roll shape and has a stiffness body inside the elastic layer and the pressure applying rotary body represents a roll shape and has a stiffness body inside the second elastic layer.

9. The fixing device of claim 8, wherein Asker-C hardness of the pressure applying rotary body is larger than that of the heat applying rotary body.

10. The fixing device of claim 8, wherein the elastic layer of the heat applying rotary body and the second elastic layer of the pressure applying rotary body are formed so that Asker-C hardness per unit thickness of the elastic layers is equal to each other, and a thickness of the elastic layer of the heat applying rotary body is made larger than that of the second elastic layer of the pressure applying rotary body.

11. The fixing device of claim 8, wherein a thickness of the second elastic layer of the pressure applying rotary body is equal to that of the elastic layer of the heat applying rotary body, and Asker-C hardness of the releasing layer of the heat applying rotary body is smaller than that of the second releasing layer of the pressure applying rotary body.

12. The fixing device of claim 1, wherein the heat applying rotary body is a heat applying and fixing belt representing an endless belt shape, and the pressure applying rotary body represents a roll shape and has a stiffness body inside the second elastic layer.

13. The fixing device of claim 12, further comprising a pressure applying body for coming into contact with an inner side of the heat applying and fixing belt and for pressing the heat applying and fixing belt toward the pressure applying rotary body.

14. The fixing device of claim 13, wherein Askern-C hardness of the pressure applying rotary body is larger than that of the pressure applying body.

15. An image forming apparatus comprising the fixing device set forth in claim 1, and an image forming device capable of outputting an image having at least two or more colors.

16. An image forming apparatus comprising the fixing device set forth in claim 1, wherein an outer layer of each of the heat applying rotary body and the pressure applying rotary body mainly comprises PFA, a toner comprises a wax, and a mechanism for coating the toner releasing layer to a surface of each of the heat applying rotary body and the pressure applying rotary body is absent.